

Trend Study 13A-15-99

Study site name: Hideout Mesa .

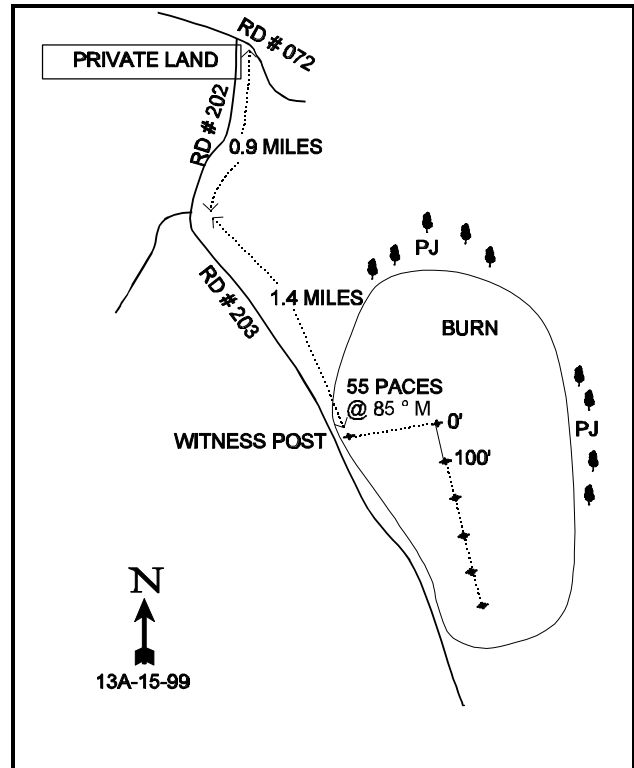
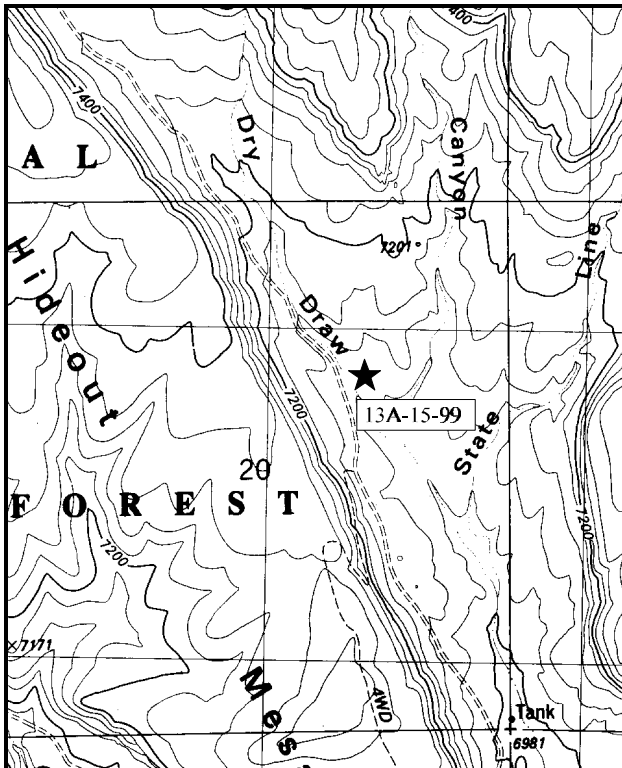
Range type: Sagebrush-Grass Burn .

Compass bearing: frequency baseline 155°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

From LaSal Junction take Highway 46 east to mile marker #16. From mile marker #16 travel east 0.10 miles and turn left (north). Proceed 1.2 miles to Forest Service Road #072 and turn right (fork heads toward Buckeye Reservoir). Continue 5.2 miles to a cattle guard. Continue 1.9 miles and turn right (south) on F. S. Road #202. Continue 0.90 miles and take on F. S. Road #203. Proceed 1.4 miles to a burn on the left side of the road. The baseline can be found by walking east several hundred feet out into the burn. The 0 foot stake is marked by browse tag #5.



Map Name: Ray Mesa

Diagrammatic Sketch

Township 28S , Range 26E , Section 20

UTM 4246849.514 N, 668313.714 E

DISCUSSION

Trend Study No. 13A-15 (33-15)

Hideout Mesa is a site that was selected because of its importance to an increasing elk population. It is located within the southeast lower benches of the LaSal Mountains, just west of the Colorado-Utah state line. It is in one of the bottom's of the many shallow canyons which are surrounded by several rugged flat-topped mesa's. This study is inside a shallow canyon bottom of sagebrush and grass, within a moderately large opening of thick pinyon-juniper woodland in association with scattered Ponderosa pine. The area had recently been burned. Pellet group transects that were read in 1999 show cow use at 50 cow days use/acre (124 cdu/ha), deer days use/acre at 11 (27 ddu/ha), and elk days use/acre at 36 (89 edu/ha). There are two well worn livestock trails that run through the site.

The site has an elevation of 7,100 feet with a southeast aspect and slope of about 3%. The shallow and narrow canyon bottom has a moderately shallow (effective rooting depth of only 10 inches) sandy clay loam soil with very little rock or pavement on the surface or within the profile. Soil pH is neutral (7.2) with good amounts of phosphorous, one of only a few sites with above 10 ppm of phosphorous. Past erosion problems are evident due to a large gully nearby that has been active historically. The site has a fairly good vegetative cover, with on average almost 60% of the cover coming from herbaceous species, which gives the best protection from high intensity summer storms. Percent bare ground is fairly high for this kind of site, but it has been about the same since 1994.

The most common browse species on this site in order of abundance are mountain big sagebrush, fringed sagebrush, low rabbitbrush, and broom snakeweed. There are a few scattered plants of serviceberry, fourwing saltbush, and rubber rabbitbrush. Most of the species appear to be stable to slightly increasing in density. The most important species of concern is mountain big sagebrush which appears to be increasing in numbers and on average provides 77% of the browse cover. The biotic potential (proportion of seedlings to the population) for this population was 196% in 1994, but only 3% in 1999. Percent young age class has gone from 27% up to 54%. Percent decadence has decreased from 17% down to 13%. Strip frequency has also indicated an increase in abundance. This all leads to a continuing increase in sagebrush numbers.

The herbaceous understory is diverse with 13 species of grasses and 35 species of forbs being identified in 1994 and 1999. Four species of grass (western wheatgrass, blue grama, prairie junegrass, and needle-and-thread grass) made up 88% of the grass cover in 1994. In 1999, these species only made up 72% of the grass cover. With little late summer precipitation, blue grama was not as productive as in 1994. However, cheatgrass has increased and more than compensated for this loss in cover. This is not a preferred phenomenon. However, this greatly increases the likelihood of another wildfire occurring in the area. Initially after the burn, annual grasses (cheatgrass and sixweeks fescue) made up less than one percent of the grass cover. Now they make up more than 18% of the grass cover. The herbaceous understory has many forb species, yet only one has a consistent cover value greater than one percent. Scarlet globemallow has a cover value on average of almost 2%.

1994 TREND ASSESSMENT

The soil trend, with the available data, would be stable with almost 60% of the vegetative cover coming from the herbaceous species. Litter cover is fairly good even with the recent fire. Percent bare ground is fairly high at 32%, but this is mitigated by the high amounts of litter and herbaceous cover. The browse trend is up with most of the key species showing characteristics of an increasing population, especially the mountain big sagebrush population. The herbaceous understory is stable to increasing.

TREND ASSESSMENT

soil - stable

browse - up

herbaceous understory - stable to up

1999 TREND ASSESSMENT

The soil trend appears to be stable with percent bare soil almost equal to what it was in 1994. Some litter cover was lost from 1994, but that was compensated for by increases in cryptogamic cover. On average about 60% of the vegetative cover comes from herbaceous species. The browse trend is up, especially for the key species (mountain big sagebrush) which continues to show characteristics of an increasing population. The herbaceous understory is stable to increasing even with the losses some forbs which is compensated for by the grasses.

TREND ASSESSMENT

soil - stable

browse - continued up, especially for sagebrush

herbaceous understory - stable to up

HERBACEOUS TRENDS --

Herd unit 13A, Study no: 15

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'94	'99	'94	'99	'94	'99
G	Agropyron smithii	276	252	80	77	4.98	3.68
G	Bouteloua gracilis	58	50	19	18	1.16	.72
G	Bromus tectorum (a)	26	*127	8	38	.04	2.81
G	Carex spp.	1	5	1	3	.00	.02
G	Hilaria jamesii	6	4	3	1	.19	.03
G	Koeleria cristata	216	169	75	61	3.82	4.17
G	Oryzopsis hymenoides	3	9	1	3	.18	.09
G	Poa fendleriana	29	45	10	14	.12	.46
G	Poa pratensis	5	*-	3	-	.01	-
G	Poa secunda	-	*56	-	20	-	.59
G	Sitanion hystrix	54	*25	20	14	.95	.19
G	Sporobolus cryptandrus	-	*9	-	4	-	.04
G	Stipa comata	51	*86	23	32	1.24	2.47
G	Vulpia octoflora (a)	3	4	1	2	.00	.03
Total for Annual Grasses		29	131	9	40	0.04	2.85
Total for Perennial Grasses		699	710	235	247	12.69	12.50
Total for Grasses		728	841	244	287	12.74	15.35
F	Agoseris glauca	-	2	-	1	-	.00
F	Alyssum spp. (a)	4	*-	3	-	.01	-
F	Androsace septentrionalis (a)	-	*45	-	20	-	.10
F	Artemisia ludoviciana	29	23	10	8	.53	.57
F	Astragalus miser	9	3	3	1	.39	.03
F	Castilleja linariaefolia	6	*-	3	-	.06	-
F	Cirsium undulatum	4	1	2	1	.03	.00

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'94	'99	'94	'99	'94	'99
F	Comandra pallida	94	*-	35	-	.69	-
F	Collinsia parviflora (a)	39	*1	15	1	.07	.00
F	Crepis acuminata	-	1	-	1	-	.03
F	Cryptantha spp.	6	*-	3	-	.02	-
F	Cymopterus spp.	4	-	1	-	.00	-
F	Descurainia pinnata (a)	3	*-	2	-	.01	-
F	Draba nemorosa (a)	75	*11	32	7	.16	.03
F	Erigeron spp.	8	*-	4	-	.02	-
F	Erigeron pumilus	42	*14	18	5	.09	.08
F	Eriogonum racemosum	11	6	6	5	.17	.05
F	Gayophytum ramosissimum (a)	4	-	1	-	.00	-
F	Gilia spp. (a)	148	*1	59	1	.32	.00
F	Grindelia squarrosa	41	*-	16	-	.15	-
F	Heterotheca villosa	12	11	5	4	.08	.36
F	Ipomopsis aggregata	10	*-	4	-	.02	-
F	Lappula occidentalis (a)	13	12	8	6	.04	.03
F	Linum lewisii	4	7	2	3	.01	.06
F	Lupinus spp.	4	1	2	1	.01	.03
F	Machaeranthera canescens	27	*6	13	2	.06	.01
F	Microsteris gracilis (a)	38	*114	14	42	.09	.36
F	Oenothera pallida	5	7	2	2	.03	.03
F	Orthocarpus spp. (a)	-	4	-	1	-	.00
F	Penstemon spp.	20	29	9	14	.07	1.27
F	Penstemon pachyphyllus	2	5	1	3	.00	.01
F	Penstemon thompsoniae	14	-	9	-	.70	-
F	Phlox longifolia	36	*19	17	7	.08	.03
F	Plantago patagonica (a)	77	*50	29	16	.32	.10
F	Polygonum douglasii (a)	28	38	10	19	.05	.09
F	Ranunculus testiculatus (a)	2	-	2	-	.01	-
F	Sphaeralcea coccinea	129	132	50	52	1.72	1.23
F	Trifolium spp.	11	*2	4	1	.02	.00
F	Zigadenus paniculatus	6	8	3	4	.01	.02
Total for Annual Forbs		431	276	175	113	1.09	0.74
Total for Perennial Forbs		534	277	222	115	5.02	3.86
Total for Forbs		965	553	397	228	6.12	4.60

* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 13A, Study no: 15

Type	Species	Strip Frequency		Average Cover %	
		'94	'99	'94	'99
B	Amelanchier utahensis	1	1	-	.03
B	Artemisia frigida	54	49	2.47	.89
B	Artemisia tridentata vaseyana	62	70	9.93	10.20
B	Atriplex canescens	4	7	.15	.02
B	Chrysothamnus depressus	0	1	-	.03
B	Chrysothamnus nauseosus	2	1	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	24	27	.69	.96
B	Coryphantha vivipara arizonica	0	3	-	-
B	Eriogonum microthecum	3	5	.00	-
B	Gutierrezia sarothrae	14	15	.59	.25
B	Opuntia spp.	7	7	.00	.15
B	Pinus edulis	0	1	-	-
Total for Browse		171	187	13.87	12.53

BASIC COVER --

Herd unit 13A, Study no: 15

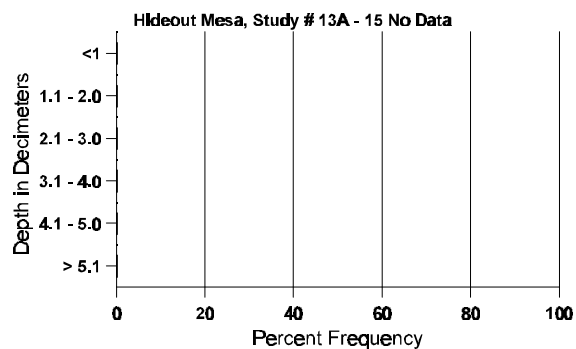
Cover Type	Nested Frequency		Average Cover %	
	'94	'99	'94	'99
Vegetation	438	429	29.71	35.97
Rock	17	28	.06	.89
Pavement	22	59	.04	.13
Litter	497	422	43.97	32.96
Cryptogams	79	251	1.32	9.93
Bare Ground	436	366	32.34	32.75

SOIL ANALYSIS DATA --

Herd Unit 13A, Study # 15, Study Name: Hideout Mesa

Effective rooting depth (cm)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
10.0	61.6 (11.2)	7.2	50.9	28.6	20.6	2.2	18.6	227.2	0.5

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 13A, Study no: 15

Type	Quadrat Frequency		Days Use per Acre (Hectare)
	'94	'99	'99
Rabbit	42	11	N/A
Elk	17	20	36
Deer	6	17	11
Cattle	-	5	50

BROWSE CHARACTERISTICS --

Herd unit 13A, Study no: 15

A Y G R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total	
	1	2	3	4	5	6	7	8	9	1	2	3	4					
Amelanchier utahensis																		
M	'94	1	-	-	-	-	-	-	-	-	1	-	-	-	20	20	24	1
	'99	-	-	1	-	-	-	-	-	-	1	-	-	-	20	30	28	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'94			00%			00%			+ 0%							
		'99			00%			100%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	20	Dec:	-			
												'99	20		-			

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia frigida																		
S	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	99	8	-	-	-	-	-	-	-	-	8	-	-	-	160			
Y	94	24	-	-	-	-	-	-	-	-	24	-	-	-	480			24
	99	57	4	-	-	-	-	-	-	-	61	-	-	-	1220			
M	94	149	-	-	5	-	-	-	-	-	154	-	-	-	3080	8	11	154
	99	171	14	2	-	-	-	-	-	-	187	-	-	-	3740	6	6	187
D	94	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	99	2	1	-	1	-	-	-	-	-	1	-	-	3	80			
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	40			
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%			+27%							
'99		08%			.79%			01%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	3660	Dec:	3%			
												'99	5040		2%			
Artemisia tridentata vaseyana																		
S	94	278	-	-	172	-	-	-	-	-	450	-	-	-	9000			450
	99	8	-	-	2	-	-	-	-	-	10	-	-	-	200			
Y	94	61	-	-	2	-	-	-	-	-	63	-	-	-	1260			63
	99	161	11	3	-	-	-	-	-	-	175	-	-	-	3500			
M	94	119	6	-	2	-	-	-	-	-	94	-	33	-	2540	20	24	127
	99	76	30	3	-	-	-	-	-	-	109	-	-	-	2180	24	31	109
D	94	36	4	-	-	-	-	-	-	-	29	-	-	11	800			40
	99	28	11	2	-	-	-	-	-	-	35	-	2	4	820			
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	2760			138
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	2320			
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		04%			00%			19%			+29%							
'99		16%			02%			02%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	4600	Dec:	17%			
												'99	6500		13%			
Atriplex canescens																		
S	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60			
Y	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	1	1	-	-	-	-	-	-	-	2	-	-	-	40			
M	94	3	-	-	1	-	-	-	-	-	3	1	-	-	80	21	16	4
	99	2	1	-	-	-	2	-	-	-	5	-	-	-	100	22	20	5
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%			+43%							
'99		29%			29%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	80	Dec:	-			
												'99	140		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus depressus																		
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60	4	12	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	0	Dec:	-	
														'99	60		-	
Chrysothamnus nauseosus																		
M	94	2	-	-	-	-	-	-	-	-	2	-	-	-	40	29	32	2
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	27	32	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%			-50%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	40	Dec:	-	
														'99	20		-	
Chrysothamnus viscidiflorus viscidiflorus																		
S	94	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	94	7	-	-	-	-	-	-	-	-	5	-	-	2	140			7
	99	10	-	-	1	-	-	-	-	-	11	-	-	-	220			11
M	94	52	-	-	-	-	-	-	-	-	52	-	-	-	1040	7	15	52
	99	66	3	-	-	-	-	-	-	-	69	-	-	-	1380	6	10	69
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			03%			+26%							
'99		04%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	1180	Dec:	-	
														'99	1600		-	
Coryphantha vivipara arizonica																		
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60	3	4	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'94	0	Dec:	-	
														'99	60		-	

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Eriogonum microthecum																		
Y	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	94	6	-	-	-	-	-	-	-	-	6	-	-	-	120	9	11	
	99	6	4	-	-	-	-	-	-	-	10	-	-	-	200	7	6	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%			+60%							
'99		27%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	120	Dec:	-			
												'99	300		-			
Gutierrezia sarothrae																		
S	94	5	-	-	1	-	-	-	-	-	6	-	-	-	120		6	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	94	-	-	-	2	-	-	-	-	-	2	-	-	-	40		2	
	99	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	94	28	-	-	8	-	-	-	-	-	36	-	-	-	720	7	11	
	99	29	-	-	-	-	-	-	-	-	29	-	-	-	580	6	6	
D	94	4	-	-	-	-	-	-	-	-	2	-	-	2	80		4	
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
X	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			05%			-14%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	840	Dec:	10%			
												'99	720		6%			
Opuntia spp.																		
S	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	94	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	94	4	1	-	-	-	-	-	-	-	5	-	-	-	100	3	9	
	99	6	-	-	-	-	-	-	-	-	6	-	-	-	120	4	10	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		13%			00%			00%			-13%							
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	160	Dec:	-			
												'99	140		-			
Pinus edulis																		
M	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	99	-	-	-	1	-	-	-	-	-	1	-	-	-	20	-	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'94		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'94	0	Dec:	-			
												'99	20		-			